

REMARKS

A. Rejections Under 35 U.S.C. § 102(b)

The rejection of claims 1-5, 9-11, 13-17, 21, and 25-30 under 35 U.S.C. § 102(b) as allegedly being anticipated by Linford, et. al. (U.S. Patent No. 5,429,708) is respectfully traversed. Applicants' invention distinguishes over Linford by requiring an electrical structure comprising a silicon-containing material having a surface, and an organic layer chemically bonded to the surface of the silicon-containing material, wherein an electrical property of the electrical structure is significantly changed compared to a same structure without the organic layer. Linford does not describe such an electrical structure, indeed, Linford is silent with respect to electrical structures. Instead, Linford merely describes a method for attaching molecular moieties to a silicon surface. In contrast, the present invention, as defined for example, by claim 1, provides far more than merely a silicon surface with molecular moieties attached thereto.

In addition, Applicants respectfully disagree with the Examiner's assertion that Linford inherently describes Applicants' claim element that an electrical property of an electrical structure containing a silicon surface modified with an organic layer is significantly changed compared to a same structure without an organic layer. In order to support an anticipation rejection based on inherency, the burden initially lies with the Examiner to demonstrate that the allegedly inherent feature necessarily flows from Linford's disclosure. It is respectfully submitted that the Examiner has not met this burden for the following reasons.

Linford does not describe any type of electrical structure whatsoever. Linford merely describes a method for modifying a silicon surface. Linford clearly does not correlate the modification with any significant change in an electrical property of an electrical structure containing a modified silicon surface. Instead, Linford merely provides a passing reference to various general uses for silicon surfaces (see col. 1, lines 21-31 and col. 8, line 53 to col. 9,

line 2). Linford's disclosure is clearly insufficient to demonstrate that the allegedly inherent feature of Applicants' invention will inevitably result from the modification of a silicon surface as set forth therein. Instead, the Examiner uses the present specification in efforts to make a correlation and thereby support the assertion that Linford inherently anticipates the present invention (see Office Action mailed October 15, 2002, page 3, lines 20-21). Such hindsight use of Applicants' specification is respectfully submitted to be improper. Thus, it is respectfully submitted that the anticipation rejection based on inherency is not properly applied. Accordingly, reconsideration and withdrawal of the rejection of claims 1-5, 9-11, 13-17, 21, and 25-30 under 35 U.S.C. § 102(b) are respectfully requested.

The rejection of claims 13 and 21-24 under 35 U.S.C. § 102(b) as allegedly being anticipated by Tsukune, et. al. (JP 6-84853 A) is respectfully traversed. Applicants' invention, as defined for example, by claim 13, distinguishes over Tsukune by requiring a process for forming an electrical device comprising providing a silicon-containing material having a surface, and forming an organic layer chemically bonded to the surface of the silicon-containing material, wherein an electrical property of the electrical device is significantly different compared to a same device if the organic layer is not formed. Tsukune does not describe such a process. Like Linford, Tsukune merely describes a process for attaching methyl groups to a silicon surface, and only makes a passing reference to electrical properties. In contrast to the process defined by present claim 13, Tsukune does not require that an electrical property of a device containing a modified silicon surface be significantly changed compared to a device containing an unmodified silicon surface.

In addition, Applicants respectfully disagree with the Examiner's assertion that Tsukune's silicon surface provides a change in voltage compared to an unmodified silicon surface. Upon review of the English translation of Tsukune which accompanied the Office Action, Applicants find no reference to voltage whatsoever, and in particular, no reference to voltage with respect to the methylated silicon surfaces described therein.

Thus, it is respectfully submitted that Tsukune does not describe each and every element required by present claim 13. Accordingly, reconsideration and withdrawal of the rejection of claims 13 and 21-24 under 35 U.S.C. § 102(b) are respectfully requested.

B. Rejections Under 35 U.S.C. § 103(a)

The rejection of claim 12 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Linford in view of Aboaf, et. al. (U.S. Patent No. 3,961,353) is respectfully traversed. Applicants' invention, as defined by claim 12, distinguishes over Linford by requiring an electrical structure comprising a silicon-containing material having a surface, and an organic layer chemically bonded to the surface of the silicon-containing material, wherein an electrical property of the electrical structure is significantly changed compared to a same structure without the organic layer, and wherein a portion of the silicon-containing material immediately adjacent to the organic layer has a porosity no greater than approximately 30 percent. Linford does not describe such an electrical structure. Instead, Linford merely describes a method for attaching molecular moieties to a silicon surface. In contrast, the present invention provides far more than merely a silicon surface with molecular moieties attached thereto. In addition, as acknowledged by the Examiner, Linford does not describe silicon-containing material having a porosity no greater than 30 %.

Reliance on Aboaf fails to cure the deficiencies of Linford. Like Linford, Aboaf does not describe an electrical structure comprising a silicon-containing material having a surface, and an organic layer chemically bonded to the surface of the silicon-containing material, wherein an electrical property of the electrical structure is significantly changed compared to a same structure without the organic layer. Instead, Aboaf merely describes methods for producing semiconductor devices having a porous layer of silicon. Thus, neither Linford nor Aboaf, alone or in combination, disclose the electrical structures required by the present invention.

Application No.: 09/905,157
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Page 5

PATENT
Attorney Docket No.: CIT1270-1

Moreover, it is respectfully submitted that there is no motivation to combine Linford with Aboaf absent the teachings of the present invention. Indeed, Linford is silent with respect to porosity of a silicon layer. Thus, the motivation to combine is clearly provided by Applicants' specification. Such use of Applicants' specification is respectfully submitted to be improper. Accordingly, reconsideration and withdrawal of the rejection of claim 12 under 35 U.S.C. § 103(a) are respectfully requested.

CONCLUSION

In view of the above remarks, reconsideration and favorable action on all claims are respectfully requested. In the event any matters remain to be resolved, the Examiner is requested to contact the undersigned at the telephone number given below so that a prompt disposition of this application can be achieved.

Respectfully submitted,

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